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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,613	10/24/2003	Mark A. Francis	K-2043	8816

7590

01/26/2005

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EXAMINER

ADDISU, SARA

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	10/692,613	FRANCIS ET AL.	
	Examiner	Art Unit	
	Sara Addisu	3722	

-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/24/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 2, Applicant's explanation of radial runout compensation dimension is unclear and can't be ascertained as set forth in the claim and spec. Claim 2 of the application (page 10) states, set of cutting inserts according to claim 1, wherein a radial runout dimension is "established" for each insert due to manufacturing tolerances; the taper of the first taper section and the second taper section of every insert "establish" the radial runout compensation dimension. Furthermore, review of the Drawings and Specification does not clarify this dimension. On page 6 (lines 5-9), the Specification states "Maximum outward radial displacement of a corner 32 or 34 of an insert 12 from rotational axis 16 is less than the magnitude of the predetermined manufacturing tolerance. Alternatively stated, radial runout compensation dimension 42, is greater than the magnitude of the predetermined manufacturing tolerance. It is unclear what reference point the Applicant is using to make the measurements.

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As best understood, the Examiner has determined the radial runout compensation dimension to be radial offset of the inserts that have a limited runout tolerance dimension that is within tolerance (i.e. the predetermined dimensional tolerance)

Regarding claim 14, Applicant stated on page 12, of claim 14, :.... End of one pocket overlaps the end of an adjacent pocket". It is not clear what Applicant is defining as end of pocket. Further review of the Specification on page 7, lines 28-31, Applicant mentions, the "most preferred embodiment" that encompasses an overlap of the end of adjacent pockets. Applicant has not clarified what he defines as "end of pocket" by means of a drawing or further detail in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Koelewijn (U.S. Patent No. 4,681,485).

Koelewijn teaches and provides as set forth in claims 1 & 11, a rotary cutting tool (end mill cutter) (20) having a rotational central axis (21) and plurality of pockets (38), and cutting inserts (34 & 35). Each insert (34 & 35) is supported in a pocket defined in its respective slot (30) (Col. 5, lines 3-4). It is inherent that as basic manufacturing

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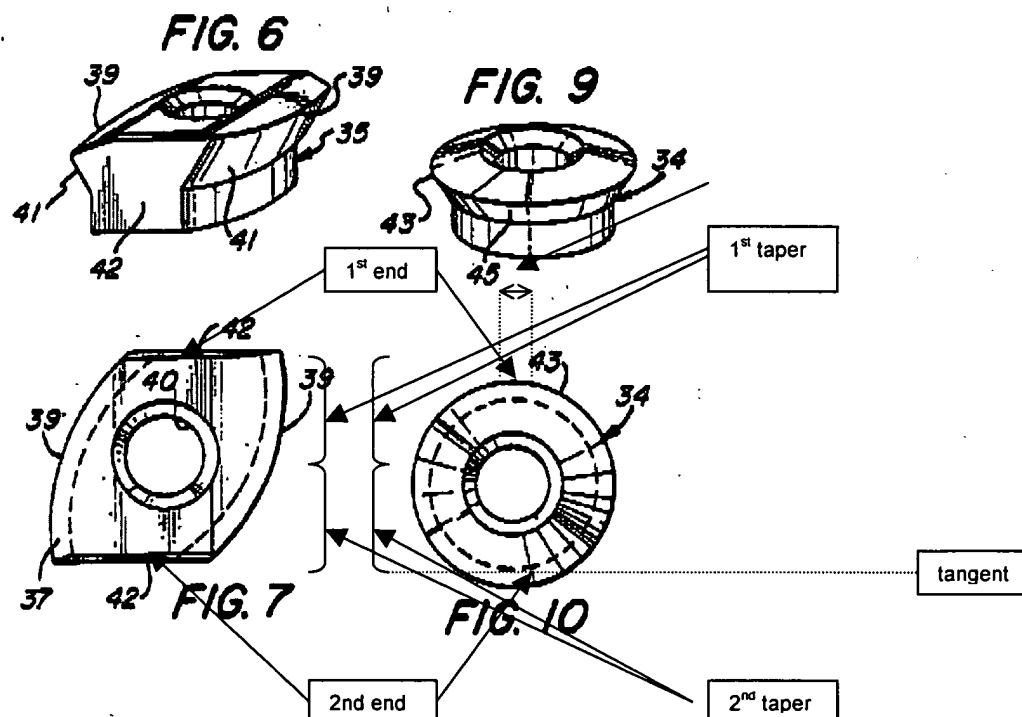
practice, tools have a predetermined dimensional tolerance (also admitted by Applicant on Page 5, lines 29-30) and the tolerances are set such that the tool stays within the set tolerance to ensure that discrepancies and poor workmanship are not introduced.

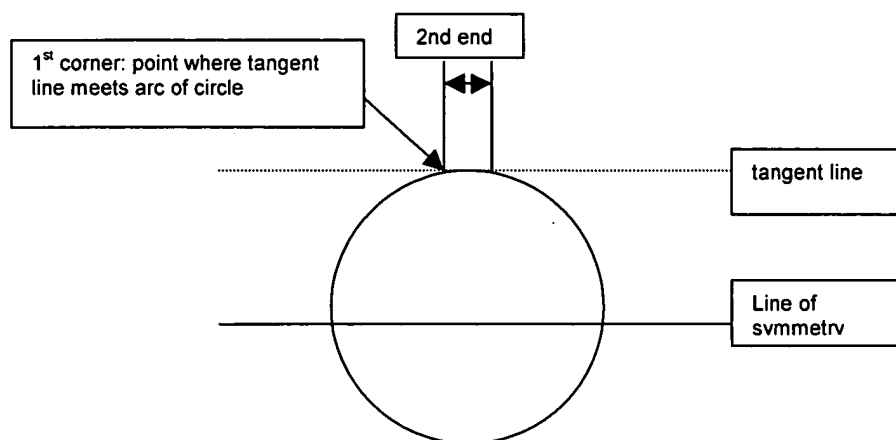
Therefore, it is inherent that Koelewijn's tool has a predetermined dimensional tolerance and the depth of the cuts (performed by the first and second taper of the cutting edge) will remain within the tolerance and therefore will never exceed it. Additionally, Koelewijn teaches each insert being mounted in an insert seat (pocket) having 60-degree V shape or conical configuration to obtain maximum rigidity in seating of the inserts (Figure 12a and Col. 3, lines 11-15 & 40-43). Consequently, the proper positioning of the inserts is ensured by retaining against centrifugal dislodgment during rotation of the tool (therefore, when the insert is installed in a pocket by a dimension of magnitude greater than that of the runout tolerance, i.e. is within the predetermined tolerance, no part of the insert projects out).

Koelewijn also teaches as claimed in claims 3 and 12, pockets that are arranged (axially staggered and circumferentially spaced) in such a manner that the inserts move in progressive engagement with the workpiece as the cutter rotates and workpiece material which is left uncut between the adjacent inserts of one slot (30) is wiped away by the intervening (subsequently passing) insert in the following slot (30), thus eliminating overlap [both inwardly and outwardly projecting lap marks] marks (i.e. first insert generates overlapping cutting contact with a workpiece relative to cutting contact made with the work piece by a second insert) (Col. 5, lines 59-68 & Col. 6, lines 1-5). (Note: The Examiner has determined that in order for the inserts of Koelewijn's

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invention to move into progressive engagement with the workpiece as stated in the patent, the overlap/stagger of the inserts has to be by more than half of the length of the cutting edge of the insert, as claimed in claims 3 and 16). Each cutting insert has a first end, a second end, at least one cutting edge (39 for insert (35) and 43 for insert (34)) spanning the first end and the second end, a first corner formed at the juncture of the cutting edge and the first end (for insert 34, the point at which the cutting edge (43) intersects the tangent line is defined as the corner), and a second corner formed at the juncture of the cutting edge and the second end (see diagram below). Koelewijn also teaches cutting edges having first tapered section, and a second tapered section extending from the first corner part way to the second corner. Furthermore, Koelewijn teaches in Figures 6,7, 9 & 10 tapered sections of the insert having a convex curve configuration (with constant radius).

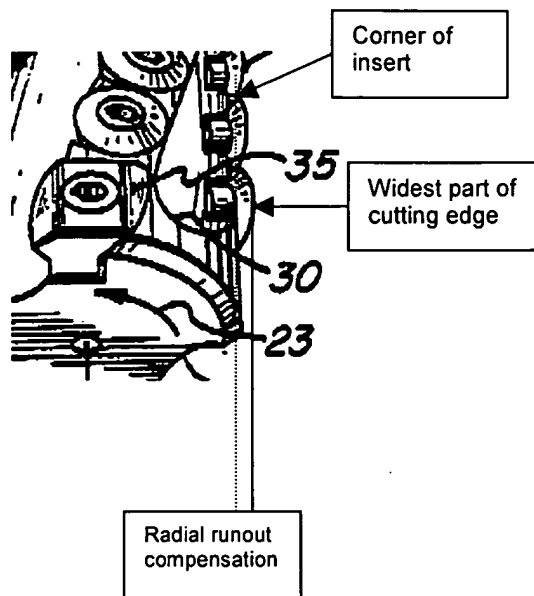




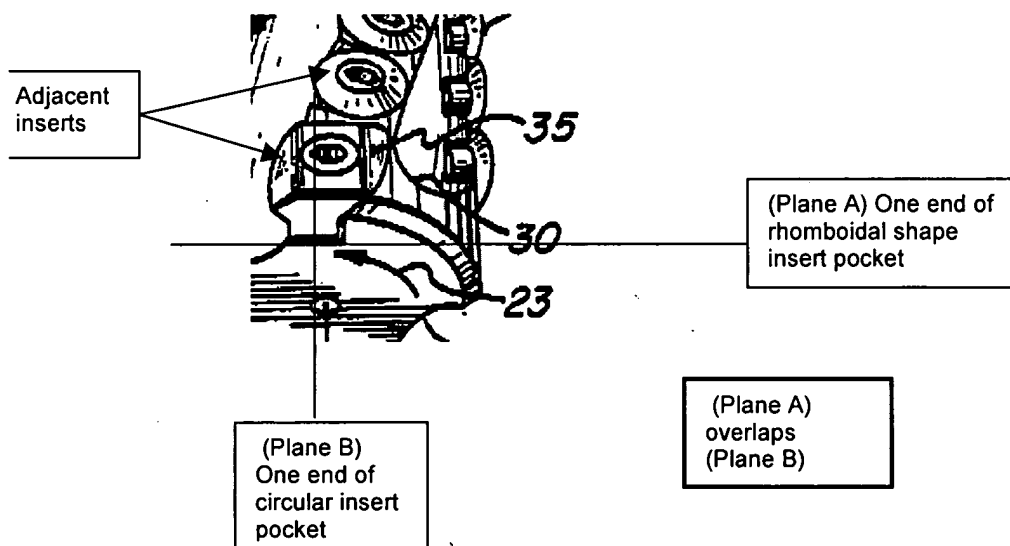
Furthermore, Koelewijn teaches inserts mounted in adjacent helical rows (along the length of the body) each having a curved cutting edge portion (of the inserts supported by the insert pockets) extending into (at least two formed) helical flutes or slots as claimed in claims 9, 10 and 13 (Figures 1 & 2 and Col. 3, lines 40-45). Koelewijn also teaches in Figures 6 and 9, inserts that are "substantially" a parallelepiped when viewed in side view.

Regarding claim 2, as best understood, the Examiner has determined the radial runout compensation dimension to be radial offset of the inserts that have a limited runout tolerance dimension that is within tolerance (i.e. the predetermined dimensional tolerance) (see drawing below).

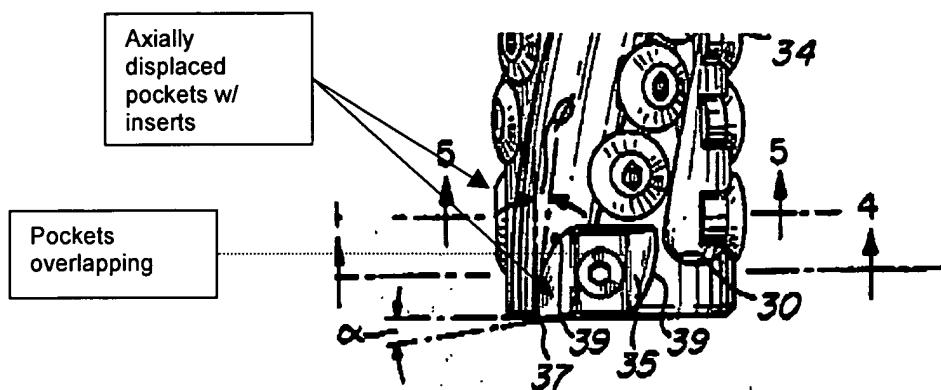
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Regarding claims 14 and 15, Koelewijn teaches (look at drawings below) axially displaced adjacent insert pockets located such that they slightly overlap. Furthermore, Koelewijn teaches pockets along a helical flute located such that the end of one pocket overlaps the end of an adjacent pocket. Examiner has defined the end of the rhomboidal shaped insert (35) to be (plane A) and the end of the circular insert pocket (34) to be (Plane B). As shown below, planes (A & B) overlap.



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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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